

December Climate Summary for Southwest Lower Michigan

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Overview

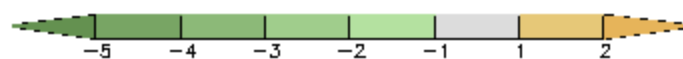
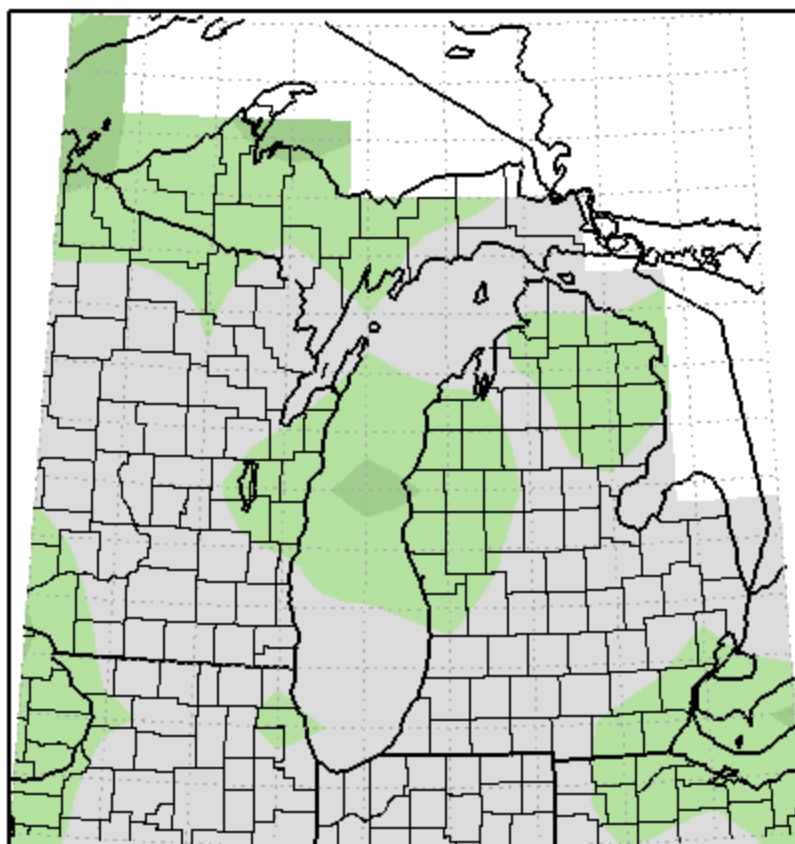
December 2009 was a fairly average month as far as temperatures were concerned. Temperatures averaged around normal values to slightly warmer than normal (Table 1). There were a couple of warm periods, at the beginning of the month, and around Christmas (Figures 2-4). There was one period around the 10th and 11th where temperatures were much below average. The remainder of the month saw temperatures generally within a few degrees of normal. Precipitation and snowfall ranged from a little bit above normal over the western areas due to lake effect snow to a little below average across the eastern areas where less lake effect occurred. Lansing did not see nearly the amount of lake effect, being farther away from the lake.

Table 1. Reported temperature, precipitation, and snowfall for the December 2009 in Grand Rapids, Lansing, and Muskegon.

Location		Temperature (degrees F)	Precipitation (inches)	Snowfall (inches)
Grand Rapids	<i>Reported</i>	27.9	2.99	35.4
	<i>Normal</i>	27.6	2.70	18.8
	<i>Departure</i>	+0.3	+0.29	+16.6
Lansing	<i>Reported</i>	27.3	1.52	11.4
	<i>Normal</i>	26.9	2.17	13.2
	<i>Departure</i>	+0.4	-0.65	-1.8
Muskegon	<i>Reported</i>	28.6	3.32	33.6
	<i>Normal</i>	28.6	2.64	29.3
	<i>Departure</i>	0.0	+0.68	+4.3

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Average Temperature Departure from Mean in Degrees F
December 1, 2009 to December 31, 2009



NOAA Midwestern Regional Climate Center

Illinois State Water Survey

Champaign, Illinois

Figure 1. Average temperature departure from normal during December 2009.

Temperatures were near normal for most of the area for December 2009. The area toward Ludington saw temperatures slightly below normal (Figure 1).

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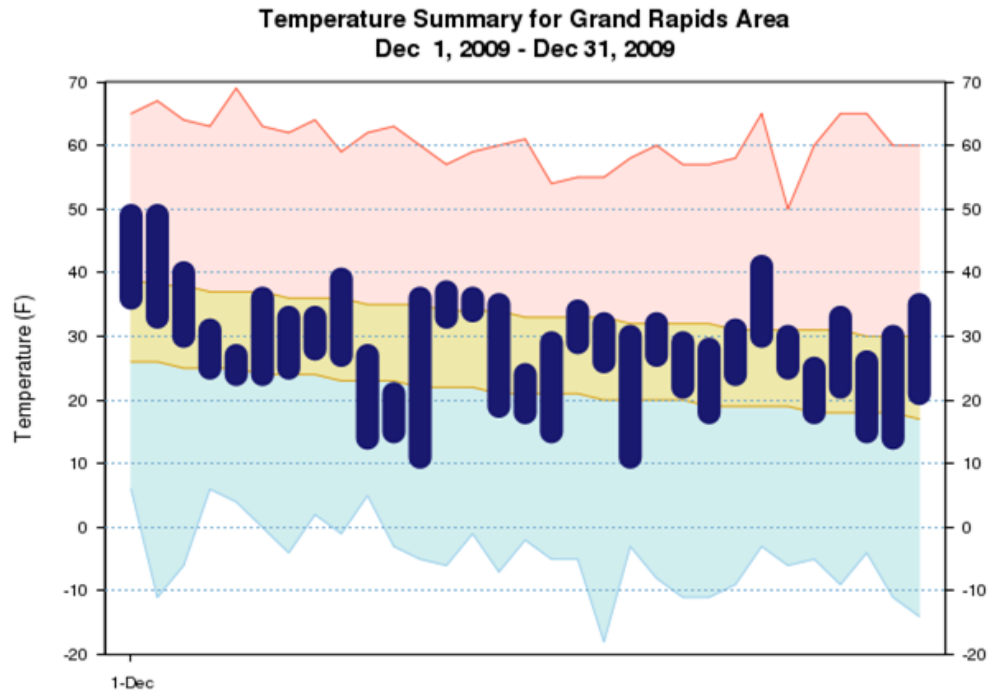


Figure 2. Observed temperatures at the Grand Rapids International Airport. Dark blue bars are the temperature range for each day. The orange strip indicates the normal range of temperatures. Record high and low temperatures are indicated at the top of the pink area and the bottom of the blue area, respectively.

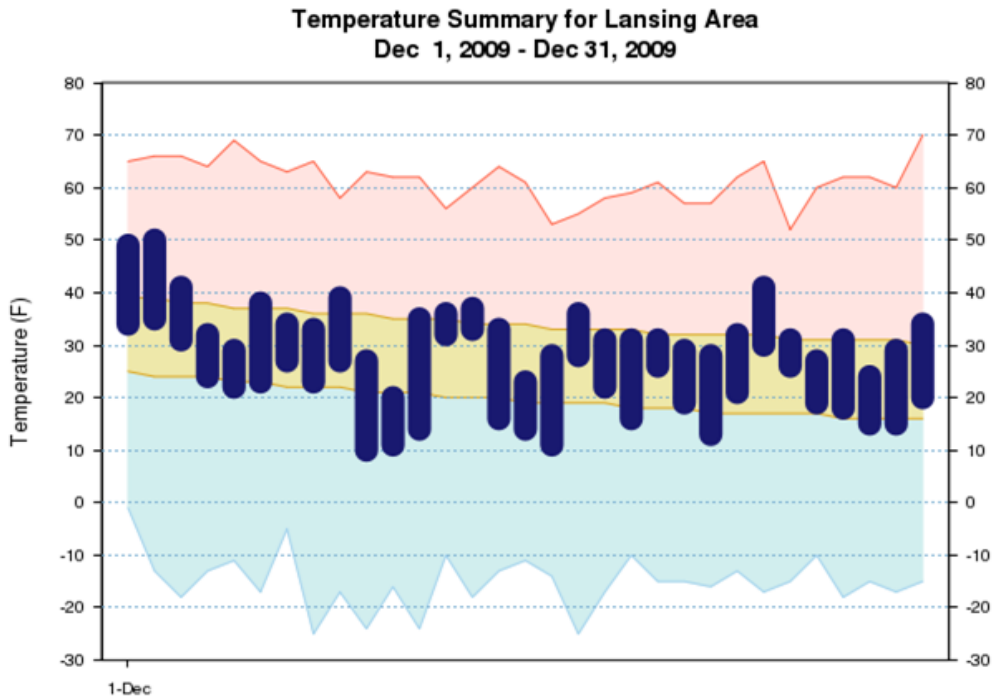


Figure 3. As in Figure 2, except for the Lansing/Capital City airport.

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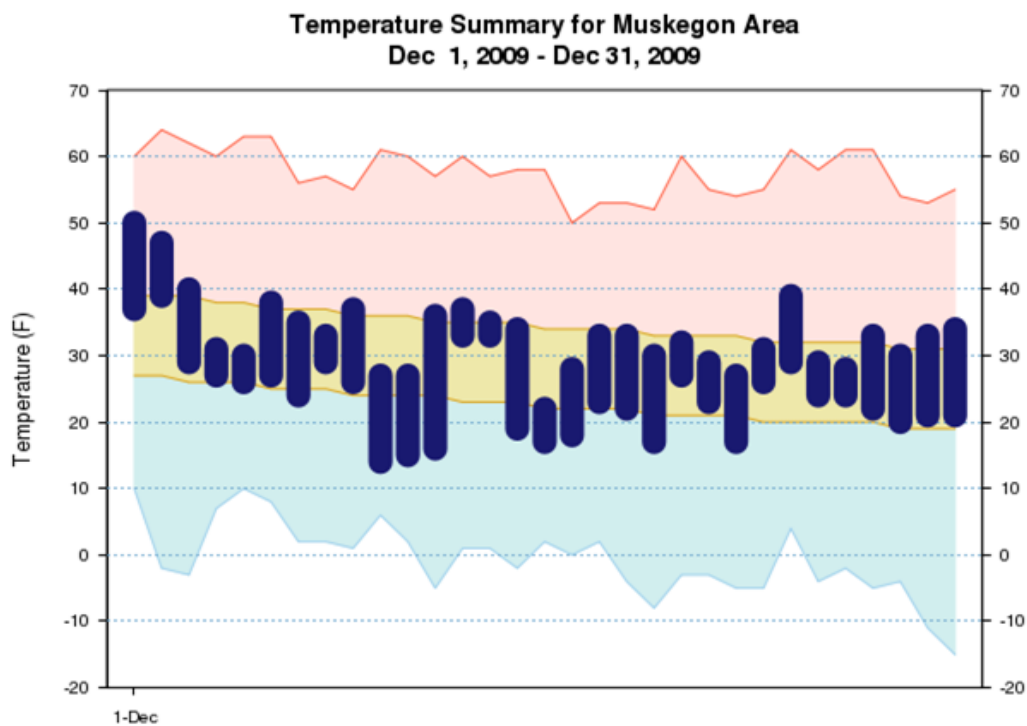


Figure 4. As in Figure 3, except for the Muskegon County airport.

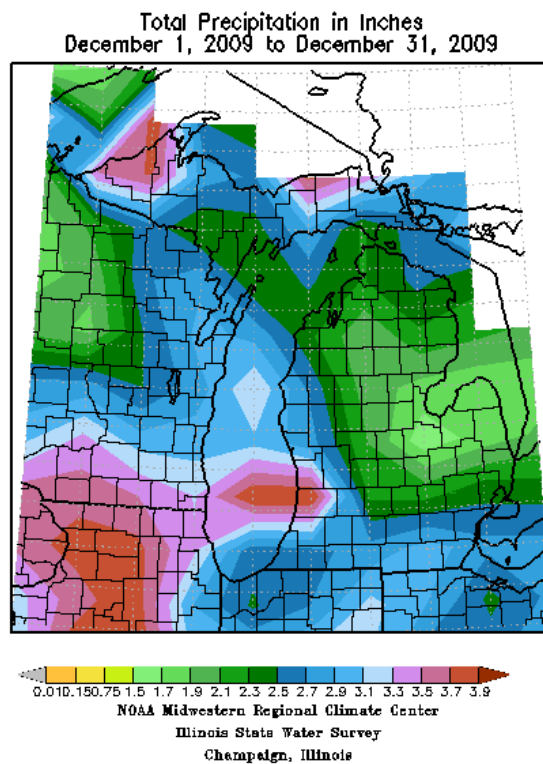


Figure 5. Total precipitation for December 2009.

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December 2009 was a fairly wet month for most of the area. A couple of wet systems combined with a good deal of lake effect snowfall for the western half of the area to bring amounts to as much as an inch above normal.

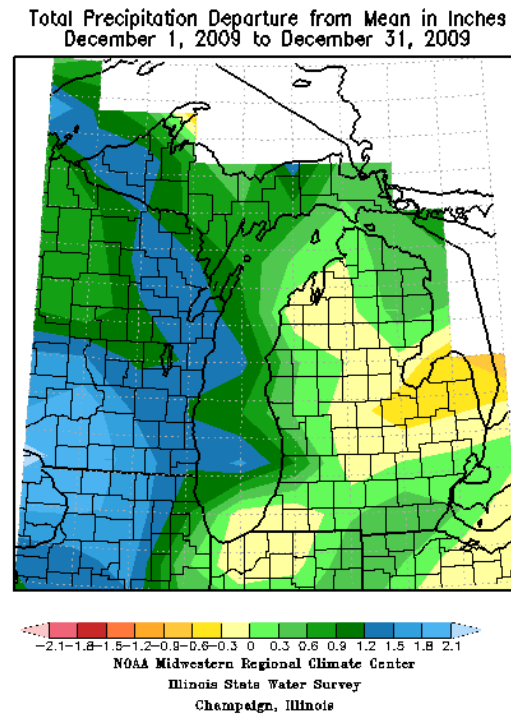


Figure 6. Precipitation departure from normal during December 2009.

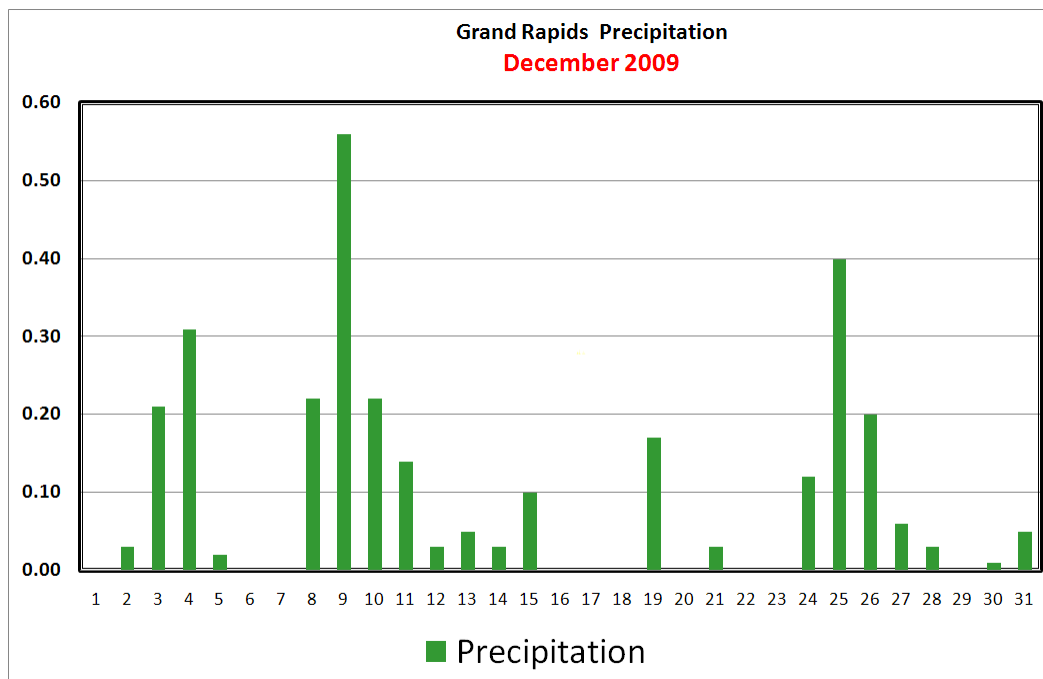


Figure 7. Daily precipitation in inches for November 2009 at the G.R. Ford International Airport.

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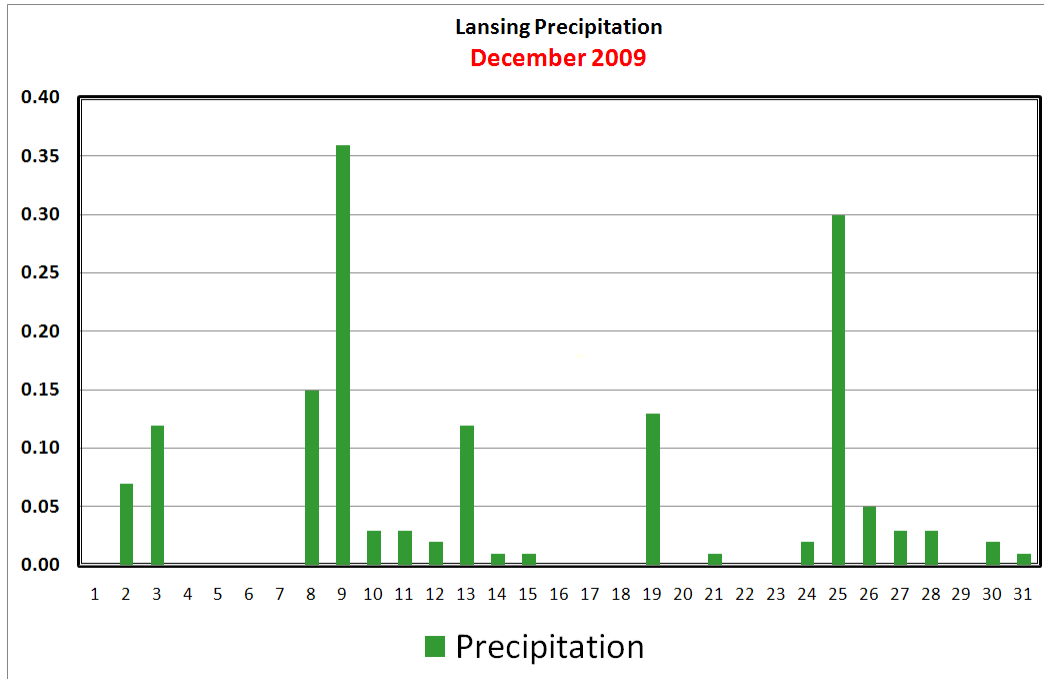


Figure 8. As in Figure 7, except for the Lansing Capital City Airport.

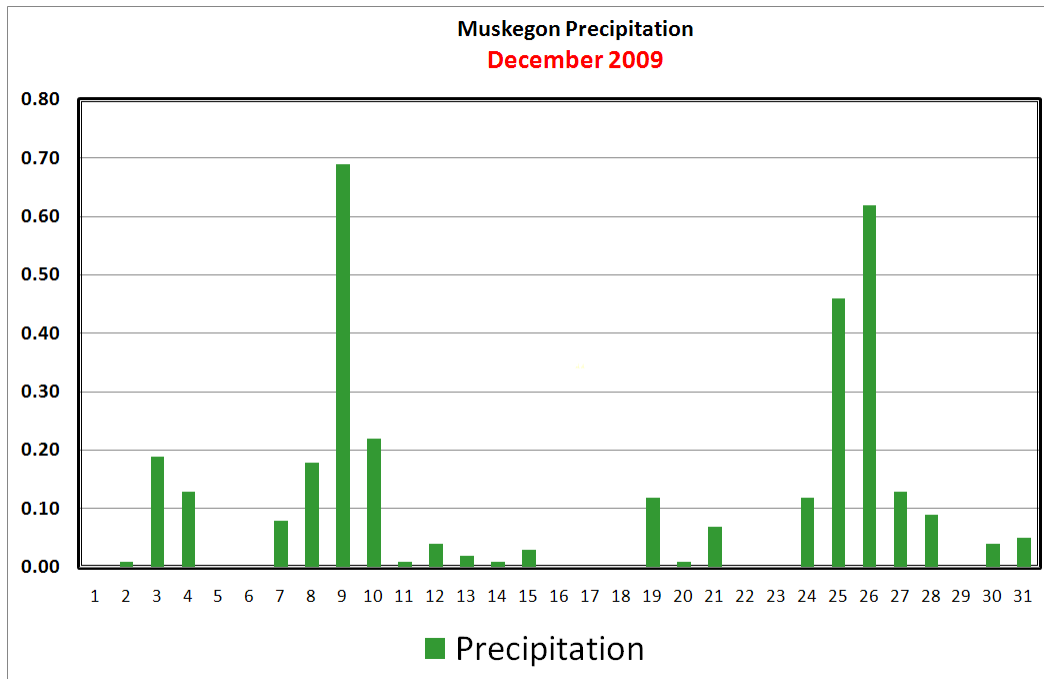


Figure 9. As in Figure 7, except for the Muskegon County Airport

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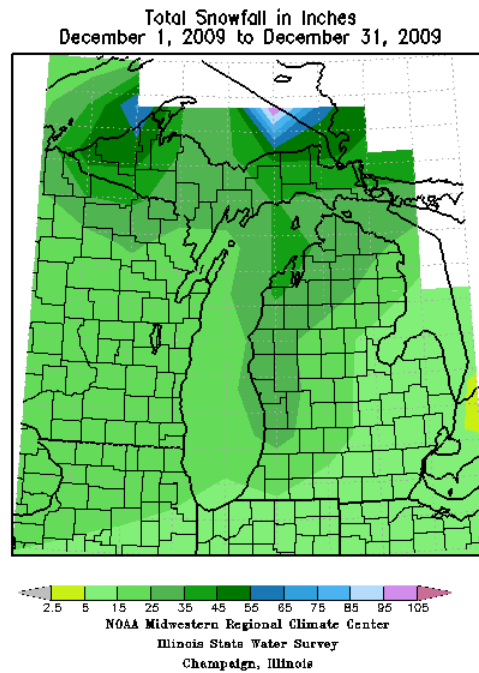


Figure 10. The total snowfall for December 2009.

A good deal of snow fell across the area during the month of December. A couple of bigger systems, combined with a couple of significant lake effect events, nearly doubled the normal December snowfall at a couple of locations.

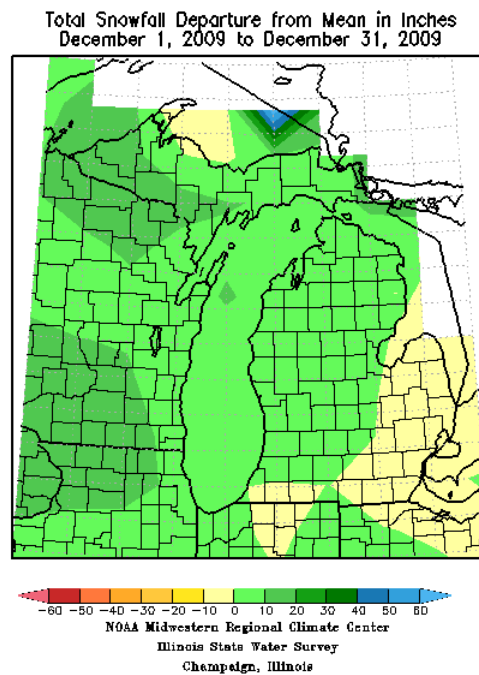


Figure 11. Snowfall departure from normal from December 2009.

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Summary

December 2009 started off where November left off, with much above normal temperatures for the first couple of days of the month. Most locations saw temperatures well into the 40s, and even approaching 50 degrees with a couple of days of unusual abundant December sunshine. Lansing and Muskegon each saw a 50 degree day in the first couple days of the month, whereas Grand Rapids reached 49 degrees.

That pattern came to an abrupt end on the 3rd and the 4th of the month as a strong wave of low pressure affected portions of the area. The system brought only light snow to a majority of Southwest Lower Michigan. The area that saw accumulating snowfall was south of route 20 and north and west of Interstate 69 where lake enhancement and training heavy snow showers played a big factor. A couple of lightning strikes were even reported in Ottawa County. The heaviest accumulations occurred across far southern Muskegon County, northern Ottawa County, and northern Kent County. Some isolated locations saw up to 16 inches of snow from 7 pm on the 3rd to 1 pm on the 4th (Figure 12).

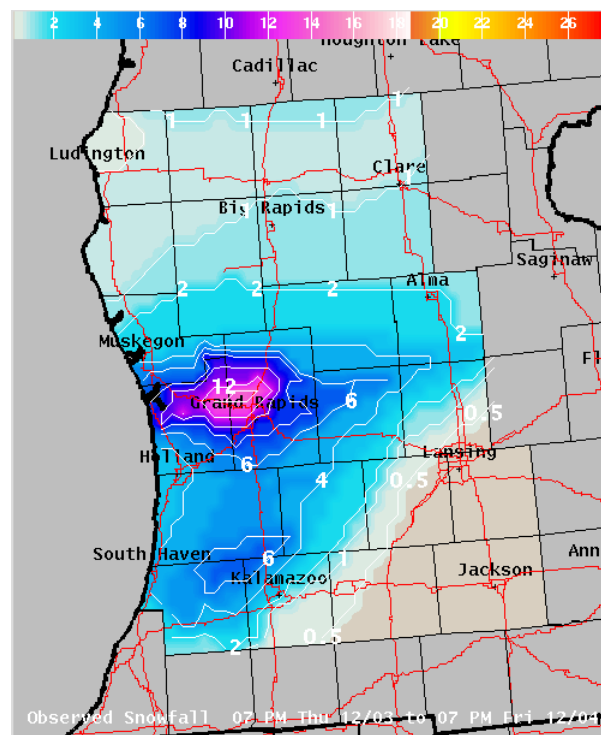


Figure 12. Snowfall totals from the 3rd and 4th of December.

After a few quiet days after the first localized snowstorm, another storm made its way toward the region. A very strong storm system gathered strength as it raced northeast out of the Rockies and Plains states. This system brought an initial burst of snowfall to all of the area during the evening hours on Tuesday, December 8th. Snowfall with this burst through Wednesday morning the 9th ranged from 1 or 2 inches along Interstate 94 where snow changed to sleet and eventually rain, to almost a foot up towards Ludington, Baldwin, and Cadillac where precipitation remained mainly snow.

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The strong area of low pressure then moved across the state during the late morning and early afternoon hours on the 9th. This strong system resulted in some of the lowest pressure readings across the area since records have been kept. Much colder air swept across the area during the late afternoon and evening hours along with increasing winds and developing lake effect snow showers. Near blizzard conditions developed during the evening hours on the 9th, and a few inches of lake effect snow fell across most areas along and west of U.S.-131. These conditions continued through Thursday night the 10th before gradually improving Friday morning the 11th. Most areas along and west of U.S.-131 saw over a foot of snow during the period from the evening of the 8th through the morning of the 11th. Lesser amounts were found farther south and east (Figure 13).

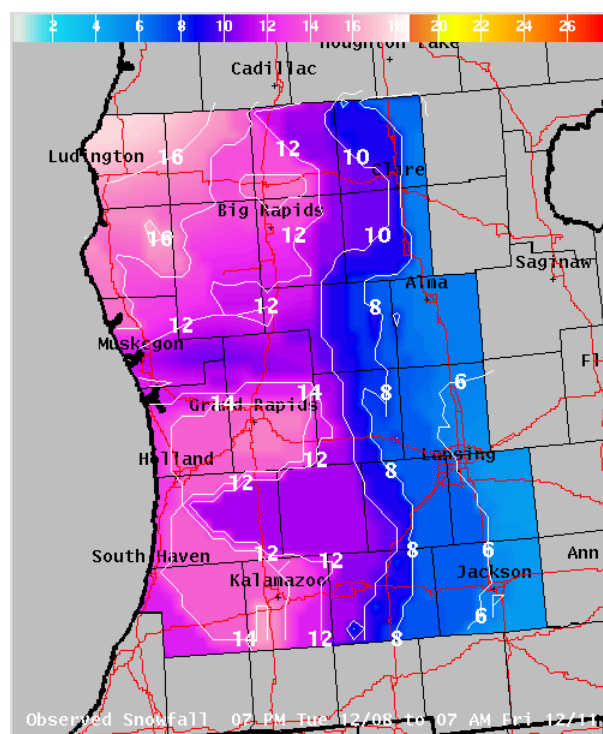


Figure 13. Snowfall totals from the 8th through the 11th of December.

Temperatures moderated for the period from the 12th through the 14th as the arctic air retreated back north into Canada. A couple of weaker systems moved across the area from the evening hours on the 12th through the 14th. These systems brought light precipitation to the area in the form of drizzle, freezing drizzle, sleet and light snow. A cold front moved through the area early on the 15th, bringing colder air back to the area. Some lake effect snow showers developed as the colder air moved in, and brought an inch or two of snowfall to northwestern areas. Another weak front brought a couple of inches of snow to the area late on the 18th and during the daylight hours on the 19th.

Another fairly strong storm system gathered strength and moved into the region for Christmas Eve and Christmas Day. A little bit of light snow lingered across the southwest portion of the

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area early on Christmas Eve. As the storm approached, a mixture of snow and freezing rain spread across the area during the evening hours of Christmas Eve. Then during the late night hours and early morning hours of Christmas Day, all precipitation changed over to rain as the center of low pressure stayed west of the state. Temperatures recovered into the mid 30s up north to lower 40s down south.

Colder air then moved back in late on Christmas Day. Lake effect snow showers redeveloped, and had a boost by a system that moved in from the southwest. Most locations saw between 1 and 4 inches of snow from Saturday the 26th through Sunday morning the 27th (Figure 14). Locations along the lakeshore saw between 4 inches and locally a foot of snow. The highest snow amounts were found across Ottawa County along the coast between Grand Haven and Holland.

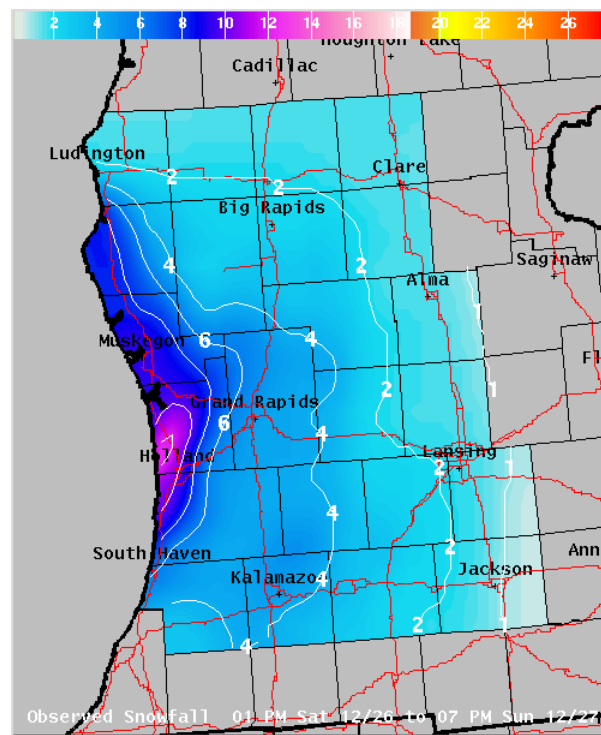


Figure 14. Snowfall from the 26th to 27th of December.

The remainder of the month was rather quiet by December standards. After the 27th, a couple of more systems moved through the area, bringing up to an inch of snowfall on a couple of different occasions. Temperatures remained within a few degrees of average.